

Claims Amendments

1. **(Currently Amended)** A treatment unit for the wet-chemical or electrolytic treatment of flat workpieces, comprising conveying members for transporting the workpieces in the unit on a conveying path, and treatment devices for the workpieces characterized in that the treatment unit further comprises

a) carrier elements (4, 5) with recesses (21), said carrier elements being oriented to be parallel to the conveying path and wherein all the recesses (21) have the same dimensions and shapes, or wherein a few differently configured groups of recesses are provided in the carrier elements (4, 5), all recesses (21) of one group of recesses (21) having the same dimensions and shapes, and

b) at least one module system, each one serving for carrying or securing at least one ~~item selected from the group comprising the conveying members (6, 6', 6'', 7), and the treatment devices~~ device, said module system comprising insertion elements (13, 14, 26), said insertion elements (13, 14, 26) being configured such that they are fitted into the recesses (21) of the carrier elements (4, 5),

characterized in that at least one of the insertion elements (13, 14, 26) carry or secure either a ~~group of at least two conveying members which are all located on one side of the conveying path or~~ at least one treatment device or an ensemble of at least one conveying member and at least one treatment device (16, 17);

c) characterized in that said at least one treatment device (16, 17) is any of:

- i flow nozzles;
- ii jet nozzles;
- iii fan nozzles;
- iv ultrasonic transducers; and/or
- v insoluble anodes.

2. **(Currently Amended)** The treatment unit according to any one of claims ~~1, 25, 26 and 27~~ 1 and 26, characterized in that the insertion elements (13, 14, 26) are secured to the carrier elements by any of screws, eccentric clamps and rocker levers.

3. **(Currently Amended)** The treatment unit according to any one of claims ~~1, 25, 26 and 27~~ 1 and 26, characterized in that the conveying members (~~6, 6', 6'', 7~~) are carried on both sides of the conveying path, with said conveying members (~~6, 6', 6'', 7~~) extending in a transverse or substantially transverse direction relative to the conveying path.
4. **(Currently Amended)** The treatment unit according to any one of claims ~~1, 25, 26 and 27~~, 1 and 26 characterized in that the conveying members (~~6, 6', 6'', 7~~) are conveyor rolls and/or conveyor wheels or conveyor balls and/or spiral-shaped conveying members, the conveyor wheels or conveyor balls being mounted on axles.
5. **(Currently Amended)** The treatment unit according to claim 4, characterized in that those conveyor wheels or conveyor balls ~~which~~ have different axles and are offset relative to each other and in that the axles are arranged so close together that the conveyor wheels or conveyor balls overlap as viewed in the direction of the axle.
6. **(Currently Amended)** The treatment unit according to any one of claims ~~1, 25, 26 and 27~~ 1 and 26 characterized in that the conveying path extends in a substantially horizontal plane.
7. **(Cancelled)**
8. **(Cancelled)**
9. **(Currently Amended)** The treatment unit according to any one of claims 1 and 26, ~~claim 7~~, characterized in that the insertion elements (26) comprise connectors for supplying the treatment devices (16, 17) with treatment media or with power.
10. **(Currently Amended)** The treatment unit according to any one of claims ~~1, 25, 26 and 27~~, 1 and 26 characterized in that the insertion elements (~~13, 14~~, 26) comprise bores (15) and/or slots (22) and/or long holes for carrying the conveying members (~~6, 6', 6'', 7~~), said slots and long holes extending substantially normal to the conveying path.

11. **(Currently Amended)** The treatment unit according to any one of claims ~~1, 25, 26 and 27, 1 and 26~~ characterized in that it further comprises a drive shaft (25) that is oriented to be parallel to at least one of the carrier elements (4, 5) outside of the conveying path and that drives the conveying members ~~(6, 6', 6'', 7)~~.
12. **(Currently Amended)** The treatment unit according to any one of claims ~~1, 25, 26 and 27, 1 and 26~~ characterized in that the axles of the conveying members (6, 6', 6'', 7) protrude from that side of at least one of the insertion elements (~~13, 14, 26~~) that is turned away from the conveying path and that the axles are equipped with toothed wheels for transmitting the force to the conveying members ~~(6, 6', 6'', 7)~~.
13. **(Original)** The treatment unit according to claim 12, characterized in that the toothed wheels are at least one of deflector wheels (27, 27') and spur gears (9, 29, 29').
14. **(Currently Amended)** The treatment unit according to claim 13, characterized in that the axles of the conveying members ~~(6, 6', 6'', 7)~~ comprise either a deflector wheel (27, 27') or a spur gear (9, 29, 29') or a combination consisting of deflector wheel (27, 27') and spur gear (9, 29, 29').
15. **(Previously Amended)** The treatment unit according to claim 13, characterized in that the deflector wheels (27, 27', 28) are any of bevel gears, worm-gears and helical gears.
16. **(Currently Amended)** The treatment unit according to claim 11, characterized in that the drive shaft (25) comprises deflector wheels (28) corresponding to and engaging the deflector wheels (27, 27') of the conveying members ~~(6, 6', 6'', 7)~~.
17. **(Currently Amended)** The treatment unit according to any one of claims ~~1, 25, 26 and 27, 1 and 26~~ characterized in that, on that side of at least one of the insertion elements (~~13, 14, 26~~), that is turned away from the conveying path, the insertion elements (~~13, 14, 26~~) are provided with at least one translating spur gear (8, 8') for transmitting the force between two conveying members ~~(6, 6', 6'', 7)~~.

18. **(Currently Amended)** The treatment unit according to claim 13, characterized in that the spur gears (9, 29, 29') on the conveying members ~~(6, 6', 6'', 7)~~ and the translating spur gears (8, 8') are arranged relative to each other and engage in such a manner that the direction of rotation of the spur gears (9, 29, 29') remains unchanged.

19. **(Currently Amended)** The treatment unit according to claim 13, characterized in that the spur gears (29, 29') comprise, in addition to a gear rim, a collar of a diameter smaller than the gear rim, thus making it possible to dispose the axles of the conveying members ~~(6, 6', 6'', 7)~~ close to each other, the collar being formed either in front or behind the gear rim as viewed in the direction of the axle of the conveying members. ~~(6, 6', 6'', 7)~~.

20. **(Currently Amended)** The treatment unit according to any one of claims ~~1, 25, 26 and 27~~, 1 and 26 characterized in that the insertion elements ~~(6, 6', 6'', 7)~~ are arranged in pairs.

21. **(Currently Amended)** The treatment unit according to any one of claims ~~1, 25, 26 and 27~~, 1 and 26 characterized in that the insertion elements ~~(8, 6', 6'', 7)~~ are fittingly slidable into the recesses (21) of the carrier elements ~~(13, 14, 26)~~. (4, 5).

22. **(Currently Amended)** ~~Use of the~~ A method of using a treatment unit according to any one of claims ~~1, 25, 26 and 27~~, 1 and 26 for treating flat workpieces in a horizontal conveyORIZED line.

23. **(Currently Amended)** A treatment unit for the treatment of flat workpieces through any one of:

- (i) wet-chemical treatment; and
- (ii) electrolytic treatment;

comprising conveying members for transporting the workpieces in the unit on a conveying path and treatment devices for the workpieces; characterized in that the treatment unit further comprises carrier elements (4, 5) with recesses (21); with said carrier elements being oriented to be parallel to the conveying path and wherein a plurality of the recesses comprise at least one

group of recesses; wherein all of the recesses in each one of the at least one group of recesses have the same dimensions and shapes; and at least one module system in the treatment unit; the at least one module system comprising means for effecting any one of:

- (iii) the carrying of; and
- (iv) the securing of;

at least one of:

- ~~(v) the conveying members (6, 6', 6'', 7) and~~
- ~~(vi)~~ (v) the treatment devices;

said module system comprising insertion elements (~~13, 14~~, 26); said insertion elements (~~13, 14~~, 26) being configured such that they are fitted into the recesses (21) of the carrier elements (4, 5); characterized in that at least one of the insertion elements (~~13, 14~~, 26) ~~carry~~ carries or secures any one of:

~~(ix) a group of at least two conveying members which are all located on one side of the conveying path;~~

~~(x)~~ (vi) at least one treatment device; and

~~(xi)~~ (vii) an ensemble of at least one conveying member and at least one treatment device (16, 17);

(viii) characterized in that said at least one treatment device (16, 17) is any of:

- (a) flow nozzles;
- (b) jet nozzles;
- (c) fan nozzles;
- (d) ultrasonic transducers; and/or
- (e) insoluble anodes.

24. **(Currently Amended)** A treatment unit for the treatment of flat workpieces through at least one of:

- (i) wet-chemical treatment; and
- (ii) electrolytic treatment;

comprising conveying members for transporting the workpieces in the unit on a conveying path and treatment devices for the workpieces; characterized in that the treatment unit further comprises carrier elements (4, 5) with recesses (21); with said carrier elements being oriented to

be parallel to the conveying path and wherein a plurality of the recesses comprise at least one group of recesses; wherein all of the recesses in each one of the at least one group of recesses have the same dimensions and shapes; and at least one module system in the treatment unit; the at least one module system comprising means for effecting at least one of:

- (iii) the carrying of; and
- (iv) the securing of;

~~at least one of:~~

- ~~(v) — the conveying members (6, 6', 6'', 7) and~~
- ~~(vi) (v) the treatment devices;~~

said module system comprising insertion elements (~~13, 14, 26~~); said insertion elements (~~13, 14, 26~~) being configured such that they are fitted into the recesses (21) of the carrier elements (4, 5); characterized in that at least one of the insertion elements (~~13, 14, 26~~) ~~carry~~ carries or secures at least one of:

~~(ix) — a group of at least two conveying members which are all located on one side of the conveying path; and~~

~~(x) (vi) at least one treatment device;~~

~~(xi) (vii) an ensemble of at least one conveying member and at least one treatment device (16,17);~~

(viii) characterized in that said at least one treatment device (16, 17) is any of:

- (a) flow nozzles;
- (b) jet nozzles;
- (c) fan nozzles;
- (d) ultrasonic transducers; and/or
- (e) insoluble anodes.

25. **(Cancelled)**

26. **(Currently Amended)** A treatment unit for the wet-chemical or electrolytic treatment of flat workpieces, comprising conveying members for transporting the workpieces in the unit on a conveying path, and treatment devices for the workpieces characterized in that the treatment unit further comprises

a) carrier elements (4, 5) with recesses (21), said carrier elements being oriented to be parallel to the conveying path and wherein all the recesses (21) have the same dimensions and shapes, or wherein a few differently configured groups of recesses are provided in the carrier elements (4, 5), all recesses (21) of one group of recesses (21) having the same dimensions and shapes, and

b) at least one module system, each one serving for carrying or securing at least one ~~item selected from the group comprising the conveying members (6, 6', 6'', 7), and the treatment devices~~ device, said module system comprising insertion elements (13, 14, 26), said insertion elements (13, 14, 26) being configured such that they are fitted into the recesses (21) of the carrier elements (4, 5), characterized in that at least one of the insertion elements (13, 14, 26) carry or secure at least one treatment device, (16, 17);

c) characterized in that said at least one treatment device (16, 17) is any of:

- i flow nozzles;
- ii jet nozzles;
- iii fan nozzles;
- iv ultrasonic transducers; and/or
- v insoluble anodes.

27. **(Cancelled)**